

Bradford Polyair Unicell™

Refer to product table below for applicable product codes covered by this document

Issue **F**

Product Type & Application

Bradford Polyair Unicell™ is an extra heavy duty thermo-reflective insulation product with a bubble core construction. It is suitable for use in roofs and walls as an exposed internal lining in Class 1 and Class 10 construction, or in concealed applications in Class 2 to 9 where non-combustible external wall construction is not required.

Compliance with the NCC

For use in Australia, when correctly specified and installed, this product provides the following compliance:

NCC 2022

- **Thermal** - Complies with NCC 2022 Volume 1 J4D3(1) and ABCB Housing Provisions Standard 2022 13.2.2(1). This product meets the requirements of the NCC through compliance with AS/NZS 4859.1.
- **Fire Hazard Properties** - Meets the requirements of the NCC 2022 Volume 1, S7C7 for insulation materials. When assessed to AS/NZS 1530.3 this product does not exceed the 'Spread of Flame' or 'Smoke Developed' indices of Table S7C7.
- **BAL and Fire Hazard Properties** - Where sarking is required by AS 3959 for construction of buildings in bushfire-prone regions BAL 12.5-FZ, this product meets the requirements of section 3.10. It also meets the fire hazard property requirements for sarking-type materials in all locations except exposed installations in fire control rooms or fire-isolated exits, in NCC 2022 Volume 1 S7C7. The product meets these requirements by having a flammability index ≤ 5 .
- **Material Performance Properties** - Meets the requirements of the NCC 2022 Volume 1 F3D3 for sarking-type material through compliance with AS 4200.1.
- **Material Performance Properties** - The Self Adhesive component of the product has not been tested to AS1530.2.

NCC 2019

- **Thermal** - Complies with NCC 2019 Volume 1 Amend. 1 Section J1.2(a), NCC 2019 Volume 2 Amend. 1 Section 3.12.1.1(a), and all state-prescribed variations. This product meets the requirements of the NCC through compliance with AS/NZS 4859.1.
- **Fire Hazard Properties** - Meets the requirements of the NCC 2019 Volume 1 Amend. 1, Specification C1.10 Clause 7 for insulation materials. When assessed to AS/NZS 1530.3 this product does not exceed the 'Spread of Flame' or 'Smoke Developed' indices of Specification C1.10 Clause 7.

Compliance with the NCC cont. NCC 2019 cont.

- **BAL & Fire Hazard Properties** - Where sarking is required by AS 3959 for construction of buildings in bushfire-prone regions BAL 12.5-FZ, this product meets the requirements of section 3.10. It also meets the fire hazard property requirements for sarking-type materials in all locations except exposed installations in fire control rooms or fire-isolated exits, in NCC 2019 Volume 1 Amend. 1 Specification C1.10. The product meets these requirements by having a flammability index ≤ 5 .
- **Material Performance Properties** - Meets the requirements of the NCC 2019 Volume 1 Amend. 1 F1.6 for sarking-type material through compliance with AS 4200.1.
- **Material Performance Properties** - The Self Adhesive component of the product has not been tested to AS1530.2.

Conditions of Storage & Maintenance

- Store in the original packaging in a cool, dry area, away from foodstuffs. Ensure packages are adequately labelled, protected from physical damage, and sealed when not in use. Avoid packaging being stored under UV light (direct sunlight) for long periods.
- Do not pressure clean or use mineral based cleaners on this product.

Refer to the product SDS at Bradfordinsulation.com.au for more information.

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Limitations of Use

- **IMPORTANT:** Do Not Modify This Product: Compliance with the evidence of suitability data referenced in this document is only achieved by the product or configuration listed in this PTS.
- **WARNING:** This product is not structural - Do not walk on this product or place/store building materials or equipment on this product.
- This material is not classified as non-combustible in accordance with AS1530.1 and is not suitable for use where non-combustible material is required.
- This product exceeds 1mm in thickness and does not meet the non-combustible sarking-type material exemption stated in NCC 2019 Volume 1 Amend. 1 C1.9(e)(vi), NCC 2022 Volume 1 C2D10(6)(f) and NCC 2019 Volume 2 Amend. 1 3.7.1.1(f), NCC 2022 Volume 2 H3D2(1)(f).
- This product does not meet the non-combustibility or fusion temperature requirements of AS 1668.1 – The use of ventilation and air conditioning in buildings, 2.3.2.
- This product does not have a Group Number in accordance with AS ISO 9705 and AS 5637.1 (NCC 2019 Volume 1 Amend. 1 Specification C1.10 Clause 4, NCC 2022 Volume 1 S7C4) and is not suitable as an exposed internal wall and ceiling lining.
- When used as a wall wrap this product is not suitable where a vapour permeable, pliable building membrane is specified for use in climate zones 6 to 8 in NCC 2019 Volume 1 Amend. 1 F6.2(a) and NCC 2019 Volume 2 Amend. 1 3.8.7.2(a), in climate zones 4-8 in NCC 2022 Volume 1 F8D3, ABCB Housing Provisions Standard 2022 10.8.1; or where the cladding manufacturer specifies a vapour permeable membrane.
- This product is not designed to withstand exposure to the elements - accordingly, it is recommended that the exterior cladding be installed within the same workday to comply with the product warranty.
- It is recommended that the installation of the membrane should not be commenced if the exterior cladding cannot be completed within the same workday.
- Not suitable as a replacement for safety mesh or as a fall arrest system.
- This product should not come into contact with wet concrete, or alkaline materials.
- This product is not suitable for submersion in water or continuous contact with soil.
- Once compressed the material R-values are reduced and are no longer suitable to meet the requirements of a thermal break in accordance with NCC 2019 Volume 1 Amend. 1 J0.4, J0.5, NCC 2022 Volume 1 J3D5, J3D6 and NCC 2019 Volume 2 Amend. 1 3.12.1.2(c) and 3.12.1.4(d), ABCB Housing Provisions Standard 2022 13.2.3(7), 13.2.5(5).

Evidence of Suitability

- Testing to AS/NZS 4859.1 in the following report applies to **Polyair Unicell 4mm** -
 - AWTATA NATA Report 20-002040.
- Testing to AS/NZS 4859.1 in the following report applies to **Polyair Unicell 10mm** -
 - R&D Services Report RD211134.
- Testing to AS/NZS 1530.3 in the following reports apply to **Polyair Unicell 4mm** -
 - AWTATA NATA Report 21-000574.
 - AWTATA NATA Report 21-004030.
- Testing to AS/NZS 1530.3 in the following reports apply to **Polyair Unicell 10mm** -
 - AWTATA NATA Report 21-005509.
 - AWTATA NATA Report 24-002040.
- Testing to AS/NZS 4200.1 across the following reports apply to **Polyair Unicell 4mm** -
 - AWTATA Report 21-000567 – *Resistance to Dry Delamination.*
 - AWTATA Report 21-000569 – *Resistance to Wet Delamination.*
 - AWTATA Report 21-000573 – *Moisture Shrinkage.*
 - Opal Report 27451-2 – *Folding Endurance.*
 - AWTATA NATA Report 21-000575 – *Tensile Strength.*
 - AWTATA NATA Report 21-000566 – *Edge Tearing.*
 - Surface Optics COA GT2257, GT2723 – *Emittance Classification.*
 - AWTATA NATA Report 21-000568 – *Vapour Control Classification.*
 - AWTATA Report 21-000570 – *Water Control Classification.*
 - AWTATA NATA Report 21-003674 – *Flammability Classification.*
- Testing to AS/NZS 4200.1 across the following reports apply to **Polyair Unicell 10mm** -
 - AWTATA Report 21-005518 – *Resistance to Dry Delamination.*
 - AWTATA Report 21-005517 – *Resistance to Wet Delamination.*
 - AWTATA Report 21-005514 – *Moisture Shrinkage.*
 - Opal Report 29236 – *Folding Endurance.*
 - AWTATA NATA Report 21-005516 – *Tensile Strength.*
 - AWTATA NATA Report 21-005515 – *Edge Tearing.*
 - Surface Optics Reports GT2723, 6395MP – *Emittance Classification.*
 - AWTATA NATA Report 21-005513 – *Vapour Control Classification.*
 - AWTATA Report 21-005512 – *Water Control Classification.*
 - AWTATA NATA Report 24-002637 – *Flammability Classification.*

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Specific Design or Installation Instructions

- Isolate power before installation.
- **WARNING:** This product contains aluminium foil which conducts electricity. To avoid electrocution, care should be taken to ensure that this product or conductive fasteners used to secure this product, do not come into contact or close proximity with electrical wiring during installation or use.
- **Caution:** Electrical cables and equipment partially or completely surrounded with bulk thermal insulation may overheat and fail.
- Recommended for use on framed walls, or roofs that are supported by safety mesh or rigid sheeting, unsupported tile roofs at ≤900mm spans, or unsupported metal roofs at ≤1200mm spans.
- Compatible for use with metal cladding, masonry, timber, slate, concrete and terracotta tiles.
- Can be used under battens.
- This product should be installed with up to a 40mm sag between battens/rafters to reduce the risk of shrinkage.
- **Application Suitability:** Suitable for installation on the exterior side of the building frame in NCC 2019 Climate Zones 1 to 5, and NCC 2022 Climate Zones 1 to 3 where a vapour barrier is specified. Always check cladding manufacturer's guidance to confirm compatibility and refer to the Condensation Risk Consideration section on this document for further guidance.
- This product should be installed with the semi-reflective or antiglare side facing outward.
- When installed from ridge to gutter, improved water control can be achieved by sealing overlaps between adjacent layers with suitable means such as heat and moisture resistant adhesive tape, with a minimum 50mm overlap.
- Improved water control at vertical joints can be achieved by sealing overlaps, end laps, discontinuities and penetrations by suitable means such as heat and moisture resistant adhesive tape with a minimum 50mm overlap.
- When installed for vapour control, this product should be sealed at overlaps (minimum 50mm), end laps, discontinuities and penetrations by suitable means such as heat and moisture resistant adhesive tape.
- When installed for water control, this product must have overlaps of minimum 150mm, or 50mm and be taped on the exterior face.
- Always follow the installation instructions in AS 4200.2, and those available on the Bradford website. For inclusion in BAL (Bushfire Attack Level) classified buildings, additionally adhere to the installation requirements of AS 3959.
- Insulation should be installed so that it forms a continuous layer and abuts or overlaps adjoining insulation other than at supporting members such as columns, studs, noggings, joists, furring channels and the like where the insulation must butt against the member.
- Reflective R-values achieved by the product rely upon adjacent air spaces and will vary depending upon the design and installation. Refer to AS/NZS 4859.2.

Specific Design or Installation Instructions cont.

- **Condensation Risk Consideration:** This product is classified as a vapour barrier and is recommended to be positioned on the warm side of the construction to reduce the risk of condensation entrapment within the structure. As there are many factors which can influence condensation risk it is highly recommended that designers undertake a hygrothermal analysis to further reduce condensation risk. If in doubt consider using a Class 4 Bradford Enviroseal vapour permeable product on the cold side of the construction.
- Suitable for interior applications where the product is protected from direct UV light, water and wind pressure during and after installation.
- To maintain the water barrier properties of the material it should not be punctured, creased, crushed, sharply folded or dragged over the building structure during installation.

For general installation guidance refer to the product installation guide at Bradfordinsulation.com.au

Supplementary information - Additional installation guidance for this product can be found in AS3999.

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Applicable Product Codes

PRODUCT	MATERIAL R-VALUE (m ² K/W)	THICKNESS (mm)	WIDTH (mm)	LENGTH (m)	m ² PER ROLL	WEIGHT (kg)	PRODUCT CODE
Polyair Unicell™	R0.10	4	1350	40	54	21	127418^
Polyair Unicell™	R0.10	4	1500	25	37.5	15	130301^
Polyair Unicell™ Self Adhesive	R0.10	4	1350	40	54	16	130304
Polyair Unicell™	R0.2	10	1350	22.25	30	11.8	487118^

^ AS/NZS 1530.3 Test Report available.

R-values are determined in accordance with AS/NZS 4859.1. The contribution of the reflective air-gap is construction dependant and excluded from the declared R-value. The duty classification of the facing material does not influence the R-value. R-values apply to the uncompressed thickness.

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Additional Product Data

Duty Classification (AS 4200.1)	Extra Heavy Duty	
Tensile Strength (AS 1301.448s and AS 4200.1)	≥ 13.0 kN/m	Machine Direction
	≥ 10.5 kN/m	Lateral Direction
Edge Tear Resistance (TAPPI T470 and AS 4200.1)	≥ 90 N	Machine Direction
	≥ 90 N	Lateral Direction
Folding Endurance (AS 1301.423 and AS 4200.1)	Pass	
Water Control Classification (AS/NZS 4201.4 and AS 4200.1)	Water Barrier	
Vapour Control Classification (ASTM E96 and AS 4200.1)	Class 2 Vapour Barrier	
Emittance Classification (AS/NZS 4201.5 and AS 4200.1)	Reflective, ≤0.05	Inward Facing
	Reflective, ≤0.05	Outward Facing
Flammability Index (AS 1530.2 and AS 4200.1)	≤ 5 (Low)	
Electrical Conductivity (AS/NZS 3100 Mod. and AS 4200.1)	Conductive	
Resistance to Dry Delamination (AS/NZS 4201.1)	Pass	
Resistance to Wet Delamination (AS/NZS 4201.2)	Pass	
Moisture Shrinkage (AS/NZS 4201.3 and AS 4200.1)	≤ 0.5 %	
Thickness	4mm or 10mm	
Material Thermal Resistance (AS/NZS 4859.1)	4mm: R0.10 10mm: R0.20	
Fire Hazard Properties (AS/NZS 1530.3)	4mm Silver and Orange Faces: Ignitability: 0 Spread of flame: 0 Heat Evolved: 0 Smoke Developed: 0-1 10mm Silver Face: Ignitability: 0 Spread of flame: 0 Heat Evolved: 0 Smoke Developed: 1 10mm Orange Face: Ignitability: 0 Spread of flame: 0 Heat Evolved: 0 Smoke Developed: 2	When tested in accordance with AS/NZS 1530.3